

refused any particular species of seed. Instead, had it been possible to make the tests, it is not unlikely that the various ants would have responded to any of the various caruncles. It is likewise presumable that other ant species and other carunculate seeds would give comparable results.

ANTS	PLANTS WITH CARUNCULATE SEEDS TO WHICH ANTS REACTED
<i>Camponotus herculeanus</i> <i>pennsylvanicus</i>	<i>Trillium grandiflorum</i> (Michx.) Salisb.
<i>Formica fusca subsericea</i>	<i>T. grandiflorum</i>
<i>Formica neogagates</i> var.	<i>T. grandiflorum</i> , <i>Sanguinaria canadensis</i> L.
<i>Lasius americanus</i>	<i>S. canadensis</i> , <i>Viola cucullata</i> Ait.
<i>Lasius niger</i> var. <i>americanus</i>	<i>T. grandiflorum</i>
<i>Myrmica emeryana</i>	<i>S. canadensis</i>
<i>Myrmica fracticornis</i>	<i>T. grandiflorum</i>
<i>Prenolepis imparis</i>	<i>Ricinus</i> species, <i>V. cucullata</i>

Observations thus far indicate that carunculate seeds are for the most part of the drop-seed type, *Viola* being an exception. (The mechanical dispersal in *Viola* is accomplished by means of the lengthwise closing of the valves of the capsule, as it opens and dries, ejecting the seeds. Ants may carry them a much greater distance, accomplishing wider dispersal.) Dissemination by ants, in the New England flora, has proven more general than was at first thought, when tests with *Trillium* seeds were made. The interrelation of ants and of carunculate seeds may be even more widespread than is now presumed. In general, ants and carunculate seeds may be interdependent: this, in fact, may be cosmopolitan.

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## VIRGINIAN BOTANIZING UNDER RESTRICTIONS

M. L. FERNALD

(Continued from page 413)

TIARELLA WHERRYI Lakela in Am. Journ. Bot. xxiv. 344, pl. 1 (1937), including *T. cordifolia*, var. *collina* Wherry, Not. Nat. Acad. Sci. Phil. no. 42: 3 (1940) and *T. cordifolia*, subsp. *collina* (Wherry) Wherry, l. c. 4 (1940). To the counties already recorded (Amelia, Mecklenburg, Henry and James City) add the following. BEDFORD COUNTY: May 7, 1871, A. H. Curtiss.



BRUNSWICK COUNTY: bluffs of Meherrin River, near Westward Mill, May 4, 1942, *J. B. Lewis*, no. 3410; rich wooded bluffs below Western Bridge, Meherrin River, south of Edgerton, October 12, 1942, *Fernald & Lewis*, no. 14,482. See pp. 379, 380.

I get no satisfaction in trying to separate from *Tiarella Wherryi*, described from Tennessee, southwestern North Carolina and Alabama, the non-stoloniferous plant found from the Blue Ridge eastward to the Coastal Plain. According to Wherry, l. c., "*T. Wherryi* differs in flowering later, in the stems usually bearing one or more leaves, and in the acutish sepals rarely being over 2 mm. long and 0.75 mm. wide", whereas his *T. cordifolia*, var. *collina* (type from Henry County, Virginia) has the "leaves similar to those of var. *austrina* . . . in tending to be longer than wide, and in having the marginal teeth broad with shallow sinus; flowers appearing in spring; flowering stems normally leafless; sepals oblong, obtuse, 2.5–3.5 by 1.5 mm."

Stoloniferous northern *Tiarella cordifolia* has the leaves so variable in outline that it is quite easy to find specimens from Maine, New Hampshire and other northern states and from Quebec, New Brunswick and Ontario with leaves inseparable in outline and tooting from those of southern plants cited as var. *austrina* Lakela or as var. *collina*. As defined by Wherry vars. *austrina* and *collina* have the leaves "tending to be longer than wide", while *T. cordifolia* var. *typica* has, according to him, the leaves "tending to be about as long as wide". As already stated, in New England, where var. *typica* alone is supposed to grow, leaves positively longer than wide are common: 5.3 cm. long, 3.6 cm. wide; 6 cm. long, 4.5 cm. wide; 6.5 cm. long, 5 cm. wide; 8 cm. long, 6 cm. wide; 9 cm. long, 7 cm. wide; 9.5 cm. long, 7 cm. wide; 10 cm. long, 9 cm. wide; 10.3 cm. long, 8.3 cm. wide; 11 cm. long, 7.3 cm. wide; 14 cm. long, 11 cm. wide. When, furthermore, we find that many specimens of the nonstoloniferous var. *collina* "foliis var. *austrina* similis" have leaves nearly or quite as broad as long (Amelia Co.: 8 cm. long by 7.4 cm. wide and 11 cm. long by 9.6 cm. wide; Brunswick Co: 7 cm. long by 6.5 cm. wide, 6.5 cm. long by 7 cm. wide, 7.3 cm. long by 7.5 cm. wide, 10 cm. long by 9.5 cm. wide; Durham County, North Carolina: 9 cm. long by 7.8 cm. wide or 9.5 cm. long by 8.5 cm. wide), it is evident that the difference in proportion is of less significance



than assumed. As for size, the maximum given in the original description of *T. Wherryi* is 14 cm. long and 9 cm. wide; but plenty of New England specimens of *T. cordifolia*, var. *typica* have leaves 10–14 cm. long and 9–11 cm. broad, while in the nonstoloniferous Piedmont *T. cordifolia*, var. *collina* full-grown leaves are essentially the same size; and surely the leaf of *T. Wherryi* was originally described as longer than wide, “folia laminis elongato-ovatis . . . 7–14 cm. longis 6–9 cm. latis” and the type-sheet, as shown by the memorandum on Dr. Lakela’s photograph (her plate 1) of it, was originally taken by her to be merely a southern variety of *T. cordifolia*.

As to the bract or bracts on the scape, I am unfortunate in not having before me the large series of Dr. Wherry’s material of *T. Wherryi*, which is said to differ from his *T. cordifolia*, var. *collina* in “having the stems usually bearing one or more leaves”. If, as appears from the original account of *T. Wherryi*, that species is the nonstoloniferous plant of Tennessee and Alabama, it would seem that the considerable series of such plants from those states which has accumulated in the Gray Herbarium and at the New York Botanical Garden should be *T. Wherryi*. The difficulty is, that in this series, including plants from Tuscaloosa County and other areas cited in the original description “caules floriferi . . . nudi vel 1–3 foliis parvis instructi”, only 6 scapes show bracteal leaves (in each case solitary), while 47 scapes are bractless. From the station in Brunswick County, Virginia, of what should be naked-scaped *T. cordifolia*, var. *collina*, one of Mr. Lewis’s specimens has a well developed leaf on the scape, while a similar specimen from near Raleigh, North Carolina (*Godfrey*, no. 3424) shows bracted scapes. Incidentally, it is notable that Dr. Lakela’s illustration of the type of *T. Wherryi* shows only *naked* scapes.

Coming to the reputed difference between the sepals of *Tiarella cordifolia* (var. *collina*) and *T. Wherryi*: the former with “sepals obtuse, 2.5 to 3.5 by 1 to 1.5 mm.”, the latter with “the acutish sepals rarely being over 2 mm. long and 0.75 mm. wide”, it seems from the material assembled in the Gray Herbarium that too much stress has been given these points. Material from Tuscaloosa County, Alabama, has blunt sepals 3 mm. long and 1.3 mm. broad, while *T. Wherryi* from Grundy County and from Marion



County, Tennessee, *Svenson*, nos. 7653 and 10,056 respectively, shows the sepals quite obtuse. Desiring a check on my own measurements, I asked, without telling him my results, the very accurate Dr. Robert C. Foster to measure under his binocular some selected specimens. His (and my) measurements give the following results, the specimens all being in late anthesis. *T. Wherryi* from Cumberland County, Tennessee, *C. A. and Una F. Weatherby*, no. 6249, sepals 2.3–2.6 mm. long; from Marion County, Alabama, *E. J. Palmer*, no. 38,997 (as *Heuchera villosa*), sepals 2.3–2.4 mm. long. *T. cordifolia*, var. *typica* from Wilton, New Hampshire, May 11, 1886, *M. A. C. Livermore*, sepals 2–2.2 mm. long; from Charlemont, Massachusetts, May 15, 1915, *Churchill & Woodward*, sepals 2.4–2.6 mm. long; from Becket, Massachusetts, *Fernald*, no. 15,172 (type of forma *parviflora*), sepals 1.8–2.2 mm. long. Since northern stoloniferous *T. cordifolia* may have the sepals down to 1.8 mm. long, while southern nonstoloniferous *T. Wherryi* may have them up to 3 mm. long and 1.3 mm. wide (as well as obtuse), I find myself unable to recognize a specific difference in the sepals.

Dr. Wherry finds that from his Piedmont and Coastal Plain *Tiarella cordifolia*, var. *collina* "The likewise non-stoloniferous *T. wherryi* differs in flowering later", and it is a very striking fact that the type of *T. Wherryi* in young anthesis was collected in Polk County, Tennessee, on June 12. The type-station is a ravine of Hiwassee Beach, between the Unaka Mountains and Beans Mountain, consequently relatively cool and backward. If the non-stoloniferous plants of Tennessee and Alabama are, as seems to be the case, *T. Wherryi*, it becomes important to note the flowering period of other specimens. TENNESSEE: Sevier County (Gatlinburg, not far from the Great Smoky Mountains), April 27, *Sharp*, in flower; Knoxville, Knox County, May 29, *Ruth*, no. 341, fruit and lingering flowers; Cumberland County, May 12, *Weatherby & Weatherby*, no. 6249, fruit and last flowers; Grundy County, alt. 1500 ft., April 27, *Svenson*, no. 7653, flowers; Marion County, May 13, *Svenson*, no. 10,056, flowers; Cheatham County, April 24, *E. J. Palmer*, no. 35,506, flowers. ALABAMA: Tuscaloosa County, April 19, *Harper*, no. 3490, flowers; Marion County, April 21, *E. J. Palmer*, no. 38,997, flowers. When we take the flowering material of the non-



stoloniferous plant from the Blue Ridge east to the Coastal Plain which has come to the Gray Herbarium we get the following score. VIRGINIA: Amelia County, May 2, *J. B. Lewis*, no. 87, flowers; May 21 *Lewis*, no. 89, young fruit and lingering flowers; Brunswick County, May 4, *Lewis*, no. 3410, buds, flowers and young fruit; Henry County, May 6, *Baldwin*, no. 242, flowers. NORTH CAROLINA: Durham County, April 12, *Correll*, no. 5049, flowers; May 4, *Godfrey*, no. 3809, young fruit with lingering flowers; Wake County, April 11, *Godfrey*, no. 3424, flowers; Mecklenburg County, April 26, *C. H. Knowlton*, buds and young flowers. From these facts it can only be surmised that Dr. Wherry's series of later-flowering *T. Wherryi* came from cooler habitats than much of the material collected by others.

*Tiarella Wherryi* was distinguished by Dr. Lakela by the "fructus carpellis 5–10 mm. longis . . . abrupte rotundatis ad rostellum angustum". Here is a real morphological character which seems to hold, and all the mature fruit of the Piedmont and Coastal Plain plant before me has the short and broad round-tipped valves. Northern and typical *T. cordifolia*, on the other hand, has the fruit often more elongate, 6–12 mm. long, the relatively narrow valves more lance-oblong and gradually tapering to subacuminate at tip. The stoloniferous typical *T. cordifolia*, furthermore, has the lower fruiting pedicels 7–13 mm. long; the lower pedicels of the nonstoloniferous southern series are somewhat shorter (6–10 mm. long). In typical *T. cordifolia* the tip of the filament (after disarticulation of the anther) is relatively blunt; in the nonstoloniferous southern plant the filament is more slenderly tapering at summit. All in all, the short and round-tipped fruit and the slight differences in length of pedicels and in tip of filament mark a southern nonstoloniferous plant, *T. Wherryi*, as distinguished from a more northern stoloniferous one, *T. cordifolia*. Differentiation of the nonstoloniferous plants from east of the Alleghenies from a similar plant, with inseparable technical characters but occurring west of the Alleghenies, seems artificial. It is reminiscent of the artificial separation of like plants as two species, one occurring "east of the Continental Divide", the other west of it, or the too familiar key-characters, "eastern" versus "western".



\**PHILADELPHUS INODORUS* L. CAROLINE COUNTY: steep wooded bluff by Rappahannock River, northeast of Return, *Fernald, Long & Fogg*, no. 14,168, spread from cultivation. See p. 358.

*HAMAMELIS VIRGINIANA* L., var. *PARVIFOLIA* Nutt. Local range extended into SOUTHAMPTON COUNTY: dry woods near Johnson's Millpond north of Sedley, nos. 14,336 and 14,337, strongly contrasting with typical *H. virginiana* growing with it.

\* $\times$  *PYRUS LECONTEI* Rehder (*P. communis* L.  $\times$  *pyrifolia* (Burm.) Nakai). PRINCESS ANNE COUNTY: large shrubs persisting in clearing about old house, Cedar Island, no. 12,361. ESSEX COUNTY: border of dry woods northeast of Loretto, *Fernald, Long & Abbe*, no. 14,169. SOUTHAMPTON COUNTY: border of woods 1 mile south of Branchville, no. 10,277.—Identifications kindly supplied by Professor Rehder, who informs me that this hybrid was extensively introduced by Le Conte.

\**MALUS ANGUSTIFOLIA* (Ait.) Michx., var. *PUBERULA* Rehder. SURRY COUNTY: dry oak and pine woods southwest of Spring Grove, *Fernald, Long & Abbe*, no. 14,170; dry oak and pine woods southwest of Savedge, *Fernald, Long & Abbe*, no. 14,171, tree 25 feet high, with trunk 6 inches in diameter. Identifications kindly supplied by Professor Rehder, who states that the only material he had previously seen was from Louisiana and Mississippi.

Although I here enter *Malus angustifolia* as a species of *Malus* in deference to Professor Rehder who made the identifications, the so called GENERIC distinctions between the subgenera or sections of *Pyrus* sensu DeCandolle, Endlicher, Bentham & Hooker, Focke, Engler & Prantl, Gray, Bailey and others are no different now than they were when those students of worldwide relationships treated them as all belonging in the single genus *Pyrus*. In Rehder's Manual, ed. 2, the key to genera gives these distinctions:

- |   |                    |
|---|--------------------|
| Styles connate at base: fr. usually apple-shaped, without or with few grit-cells..... | 26. <i>Malus</i> . |
| Styles free: fr. usually pear-shaped, its flesh with numerous grit-cells.....         | 30. <i>Pyrus</i> . |

Much hangs on the shape of an apple, whether the depressed-globose of the old fashioned Russet or the elongate ovoid of a Gilliflower. Similarly, although the obovoid form of most of our commonly cultivated pears is familiar, one has to look no farther than Hedrick's Pears of New York to see beautiful life-sized plates of ovoid to globose pears: globose-ovoid, suggesting a



Hubbardston apple, in *Pyrus serotina*; globose as a cherry in *P. betulaefolia*; depressed-globose, like a conventional apple, in "Gansel Seckel" and even more depressed in "Idaho". In fact, of the Pears treated in Rehder's Manual ("fr. usually pear-shaped") 13 out of the 15 species have the fruit described as "globose" "globular" "subglobose" or "ovoid"; while such a species as *Malus Halliana* is described in Rehder's key as having "fr. pyriform". The terms "apple-shaped" and "pear-shaped" thus become a bit vague. Since, furthermore, two sections of *Malus*, as accepted by Rehder, have grit-cells, we get down to styles connate at base in *Malus*, free in *Pyrus*, and another character: "lvs. . . folded or convolute in bud" in *Malus*, "involute in bud" in *Pyrus*. These, if absolutely constant, are much sounder characters than shape of fruit. I have not sufficient knowledge of the many species to be sure whether these characters are absolute. Many wise taxonomists of the past and the present have doubted their value as full generic differences, when there is so much variation in other characters. It is often said that apples and pears do not hybridize; that that is a sure test. Therefore, since *Sorbus* and *Aronia* do hybridize, keep them apart as genera and set up a new genus,  $\times$  *Sorbaronia* Rehder, for their hybrid offspring, just as the genus  $\times$  *Sorbopyrus* has been set up for the hybrid of *Pyrus communis* and *Sorbus aria*. Neither the failure of some groups to cross nor the occurrence of crosses between ordinarily quite distinct genera is the final test. So many proven cases of incompatibility within genera have been noted that one can hardly argue that incompatibility necessarily demonstrates distinctness of genera; and when such utterly unrelated genera as *Cyperus* and *Rhynchospora* have sometimes crossed, producing  $\times$  *Cyperus Weatherbianus* Fern., we do not merge the two genera.

If *Pyrus*, *Malus*, *Sorbus* and *Aronia* are distinct genera are not *Azalea* and *Therorhodon* equally separable from *Rhododendron*; *Polycodium* and *Cyanococcus* from *Vaccinium*; *Amygdalus* and *Cerasus* from *Prunus*? These subgenera have quite as many and as sound morphological characters. I am inclined to follow DeCandolle, Endlicher, Bentham & Hooker, Focke, Engler & Prantl, Gray and Bailey until much stronger cases are presented for the generic segregation of *Pyrus* in its inclusive sense. Mor-



phologically its elements are no more discordant than those of *Pinus* and *Quercus*.

\**PSORALEA PSORALIOIDES* (Walt.) Cory, var. *EGLANDULOSA* (Ell.) F. L. Freeman in *RHODORA*, xxxix. 426 (1937). **DINWIDDIE COUNTY**: low open pineland, thickets and clearings just east of McKenney, no. 14,346. First from northeast of western South Carolina. See p. 366.

\**TEPHROSIA VIRGINIANA* (L.) Pers., var. *GLABRA* Nutt. ex Torr. & Gray, *Fl. N. Am.* i. 296 (1838). **HANOVER COUNTY**: dry pine woods south of Ashland, no. 7460. **ISLE OF WIGHT COUNTY**: clearing in damp sandy pine barrens, south of Zuni, no. 14,345. **SOUTHAMPTON COUNTY**: dry sand of pine barrens about 7 miles south of Franklin, nos. 7459 and 7461. See p. 369.

*Tephrosia virginiana*, var. *glabra*, originally described from Georgia, occurs also in pine barrens or on sand-ridges of South Carolina (Clarendon County, *Godfrey & Tryon*, no. 1021) and in New Jersey. Whereas typical and wide-ranging *T. virginiana* has the internodes and leaf-rachises more or less villous, the villi either few or very numerous, the lower surfaces of the leaflets pilose to sericeous and the legume copiously long-villous, the internodes and rachises of var. *glabra* are at most closely short-hispid and often glabrate, the leaflets sparsely strigose to glabrous beneath and the legumes closely silky-strigose, not copiously villous. In eastern Virginia it seems to be the pine-barren extreme.

Recently some students have indicated the occurrence in the Atlantic States (New England and New York to South Carolina) of var. *holosericea* (Nutt.) Torr. & Gray, l. c., based on *T. holosericea* Nutt. in *Journ. Acad. Sci. Phila.* vii. 105 (1834) and I find many specimens in the Gray Herbarium from these states marked over as var. *holosericea*. So far as I can see they are nearly if not quite typical *T. virginiana*, the individuals with a few pin-point trichomes to be found on the upper surfaces of some leaflets. Nuttall's plant was a more definite variation than this: "whole plant sericeous, scarcely excepting the upper surface of the leaves. *Hab.* In the plains of Arkansas."—*Nuttall*. Torrey & Gray correctly defined it: "stem and raceme densely villous; leaflets very silky-pubescent on both sides". If we keep to the original accounts and restrict var. *holosericea* to the plants with "leaflets very silky-pubescent on both sides" (*i. e.* above as well as be-



neath) that variety assumes an inland range, from Michigan and Wisconsin to Texas, and we do not have to oversort the plants of the Atlantic States.

\*GLYCYRRHIZA LEPIDOTA Nutt., var. GLUTINOSA (Nutt.) S. Wats. BRUNSWICK COUNTY: fallow field back of old Chamblis Place, Seward Forest, near Triplett, no. 14,483. A large patch, spreading extensively by long subterranean rootstocks, doubtless originally cultivated. This is the western extreme with glutinous foliage, the stems covered with stout glands and viscid setae. See p. 378.

VICIA CAROLINIANA Walt. Local range extended northward to DINWIDDIE COUNTY: low open pineland, thickets and clearings just east of McKenney, no. 14,350. See p. 365.

POLYGALA SENEGA L., var. LATIFOLIA Torr. & Gray. BRUNSWICK COUNTY: oak-hickory woods back of old Chamblis Place, Seward Forest, near Triplett, *Fernald & Lewis*, no. 14,484; the first from the southeastern section of the state. See p. 378.

P. SANGUINEA L. To the few and scattered stations in southeastern Virginia add a second one in DINWIDDIE COUNTY: low open pineland, thickets and clearings just east of McKenney, no. 14,355. See p. 366.

\*EUPHORBIA COROLLATA L., var. PANICULATA (Ell.) Boiss. HENRICO COUNTY: open thicket, South Richmond, no. 12,711. Extension north from North Carolina.

ACER FLORIDANUM (Chapm.) Pax. BRUNSWICK COUNTY: very abundant in rich woods near Western Bridge, Meherrin River, south of Edgerton, *Fernald & Lewis*, no. 14,487. See p. 379.

AESCULUS NEGLECTA Lindl., var. PUBESCENS Sargent. GREENSVILLE COUNTY: in great abundance in rich woods along Meherrin River, below Emporia, *Fernald & Lewis*, no. 14,537. See p. 383.

Previously misidentified from meagre shrubs farther down and to the north of the river as *Ae. discolor* Pursh, which should be dropped from the Virginia list.

HYPERICUM DENTICULATUM Walt., var. OVALIFOLIUM (Britt.) Blake. To the few and remote stations add one in SOUTHAMPTON COUNTY: moist sandy and peaty shore of Whitefield's Millpond, southwest of Corinth, no. 14,366. See p. 373.

H. SETOSUM L. Range extended inland to BRUNSWICK COUNTY: wet level opening in flat woods, 1½ miles southeast of Triplett, August 18, 1942, and swampy old field south of Seward Forest, Triplett, August 5, 1943, *J. B. Lewis*. See pp. 374–376.

VIOLA CUCULLATA Ait. Very local on or near the Coastal Plain southward. The following are our only stations. KING



AND QUEEN COUNTY: magnolia swamp about 2 miles northeast of St. Stephen's Church, *Fernald, Long & Abbe*, no. 14,203.

SURRY COUNTY: low woods, Cypress Swamp, near Sexton, *Fernald, Long & Abbe*, no. 14,204. See p. 358.

V. LANCEOLATA L. To the few stations inland from the coast add one in ISLE OF WIGHT COUNTY: muddy and swaley shore, Darden's Pond, southeast of Collosse, no. 14,367.

V. LANCEOLATA, var. VITTATA (Greene) Weath. & Grisc. To the few recorded stations add one in SOUTHAMPTON COUNTY: moist sandy and peaty shore of Whitefield's Millpond, southwest of Corinth, no. 14,368. See p. 373.

V. STRIATA Ait. A second Coastal Plain station, this one in GREENSVILLE COUNTY: rich woods along Meherrin River, below Emporia, *Fernald & Lewis*, no. 14,538. See p. 383.

RHEXIA VENTRICOSA Fern. & Griscom. Range extended inland to DINWIDDIE COUNTY: ditch bordering low open pineland just east of McKenney, no. 14,369. See p. 366.

\*OENOTHERA TETRAGONA Roth, var. RIPARIA (Nutt.) Munz. DINWIDDIE COUNTY: low open pineland, thickets and clearings just east of McKenney, no. 14,370. First from north of Wilmington, North Carolina. See p. 366.

PROSERPINACA INTERMEDIA Mackenz. To the recorded Virginia station (near Lee Hall) add one in SOUTHAMPTON COUNTY: moist sandy and peaty shore of Whitefield's Millpond, southwest of Corinth, no. 14,373. See p. 373.

\*ERYNGIUM PROSTRATUM Nutt. SOUTHAMPTON COUNTY: moist sandy and peaty shore of Whitefield's Millpond, southwest of Corinth, no. 14,375. First from north of South Carolina. Identification tentative, the young fruit showing characters not surely matched in *E. prostratum*. Mature material is needed. See p. 373.

ZIZIA TRIFOLIATA (Michx.) Fern. (*Z. Bebbii* (C. & R.) Britt.). BRUNSWICK COUNTY: oak-hickory-beach woods back of old Chamblis Place, Seward Forest, near Triplett, *Fernald & Lewis*, no. 14,489. First from east of the mountains. See p. 378.

\*SIUM FLORIDANUM Small. SOUTHAMPTON COUNTY: wooded bottomland of Blackwater River, southeast of Ivor, no. 13,710, the arching or lopping stems left stranded after submergence and proliferating, the proliferous shoots producing simple leaves; sandy alluvial bottomland of Three Creek, Adams Grove, no. 14,376. GREENSVILLE COUNTY: wooded bottomland of Fontaine Creek, southeast of Taylor's Millpond, plants up to 7 feet high, no. 11,384, distrib. as *S. suave* Walt. See p. 368.

*Sium floridanum*, not recognized when Blake made the comparison, may be *S. suave* Walt. Whether it is a distinct species or a southern variety of the transcontinental northern as well as



southern plant which now passes as *S. suave* (*S. cicutaefolium*) is not wholly clear. The common northern and wide-ranging plant, which we call *S. suave*, has (except in the submersed forma *Carsonii* (Durand) Fassett and in the wholly atypical estuarine forma *fasciculatum* Fassett) the erect or ascending stem strongly corrugated; *S. floridanum* has the usually slender and more flexuous stem terete, in drying only slightly ribbed. In *S. suave* the stem branches near the summit, usually above the middle; the corrugate-angulate branches are strongly ascending; and the principal cauline leaves (below the branching) are strongly ascending, with 5–17 firm leaflets 4–15 cm. long. In *S. floridanum* the stem branches usually well below the middle, the terete branches are spreading-ascending to nearly horizontal; and the larger divergent to horizontally spreading leaves have 3–11 membranaceous leaflets 2–9 cm. long. In *S. suave* the largest (leading) umbel of each plant is 4–11 cm. broad, with angulate peduncle and 10–25 definitely angled (when dry) rays; in *S. floridanum* the more open fully developed umbels are 1–7 cm. broad, on filiform peduncles and with 7–15 filiform rays. In *S. suave* the angled pedicels of the umbellules are stiffly ascending; in *S. floridanum* the filiform pedicels are more curving or arching and prolonged. In flower and fruit the two are similar, but the petals of *S. floridanum* are narrower and the filaments and styles longer than in *S. suave*. As stated, when we have fuller material *S. floridanum* may prove to be a geographic variety, rather than a true species. The contrasts are here stated, that others may watch for this southern plant. As stated also, Walter could have had either as the basis of his *S. suave*.

*Sium suave*, forma *Carsonii*, the submersed and weak state of the wide-ranging transcontinental plant, has filmy foliage and small mostly infertile umbels. It might seem to some to include *S. floridanum*; but it is clearly demonstrated to be merely an ecological phase of *S. suave* (*cicutaefolium*). Its ascending petioles, its angulate-corrugated umbel-rays (when dry), its short and stiff pedicels, broadly rounded petals, short filaments and short style clearly show it to be *S. suave*.

PYROLA ROTUNDIFOLIA L., var. AMERICANA (Sweet) Fern.  
BRUNSWICK COUNTY: wooded bluff along Rattlesnake Creek, west of Triplett, *Fernald & Lewis*, no. 14,538, healthy colony,



never flowering. Station at remarkably low altitude for southern Virginia. See p. 377.

\**VACCINIUM STAMINEUM* L., var. *INTERIUS* (Ashe) Palmer & Steyermark (*Polycodium interius* Ashe). HANOVER COUNTY: dry sterile woods near Polegreen, no. 13,417 (fruit blue with a bloom). JAMES CITY COUNTY: woods north of Jamestown Road, about 1 mile from Williamsburg, *J. T. Baldwin, Jr.* no. 206.

Var. *interius*, as its name implies, is a characteristic shrub of the Interior. The material (except for these sheets from eastern Virginia) in the Gray Herbarium is from West Virginia, Kentucky, Missouri, Arkansas, northern Louisiana, Kansas and Oklahoma. It is of course questionable if it is a true geographic variety, the characters ordinarily used in this series (genus *Polycodium*) being very plastic or fickle. In eastern Virginia we get three of these: typical *V. stamineum* with the young branchlets pilose, the mature leaves somewhat so on the lower surface or the lateral veins, a very common plant; var. *interius* with young branchlets pilose but the leaves glabrous except along the midrib beneath; and the common var. *neglectum* (Small) Deam, with young twigs and leaves both quite glabrous. *V. caesium* Greene, a low shrub (commonly only 2–5 dm. high) of sandhills and pine barrens closely approaches the state in North Carolina, and may be watched for with confidence. Its small and broad leaves (1.5–5 cm. long) and the very large and rounded bracts (1–2 cm. broad) greatly exceeding the subtended pedicels well mark it. The group is by no means properly understood, and the varieties (species of Greene, Ashe and Small) may prove to be minor forms without good geographic ranges.

\**V. VIRGATUM* Ait. SOUTHAMPTON COUNTY: dry white sand in oak and pine woods and clearings bordering Assamoosick Swamp, south of Sebrell, no. 10,374, as *V. Elliottii* Chapm.—shrubs 2 m. high. Originally, on account of its stature, placed in *V. Elliottii* but differing clearly from that species, which has the leaves lustrous and full green on both surfaces, membranaceous and without reddish glands and gradually rounded to base, by its firmer leaves subcuneate at base, reddish glandular hairs mixed with the pilosity of the lower surface, and the very stiff and compact branching. It fairly matches more southern material identified by Gray and later by Camp as true southern *V. virgatum*.

\**V. VACILLANS* Torr., var. *CRINITUM* Fern. SURRY COUNTY: dry thicket 1 mile north of Surry Courthouse, no. 10,773, narrow-leaved extreme.



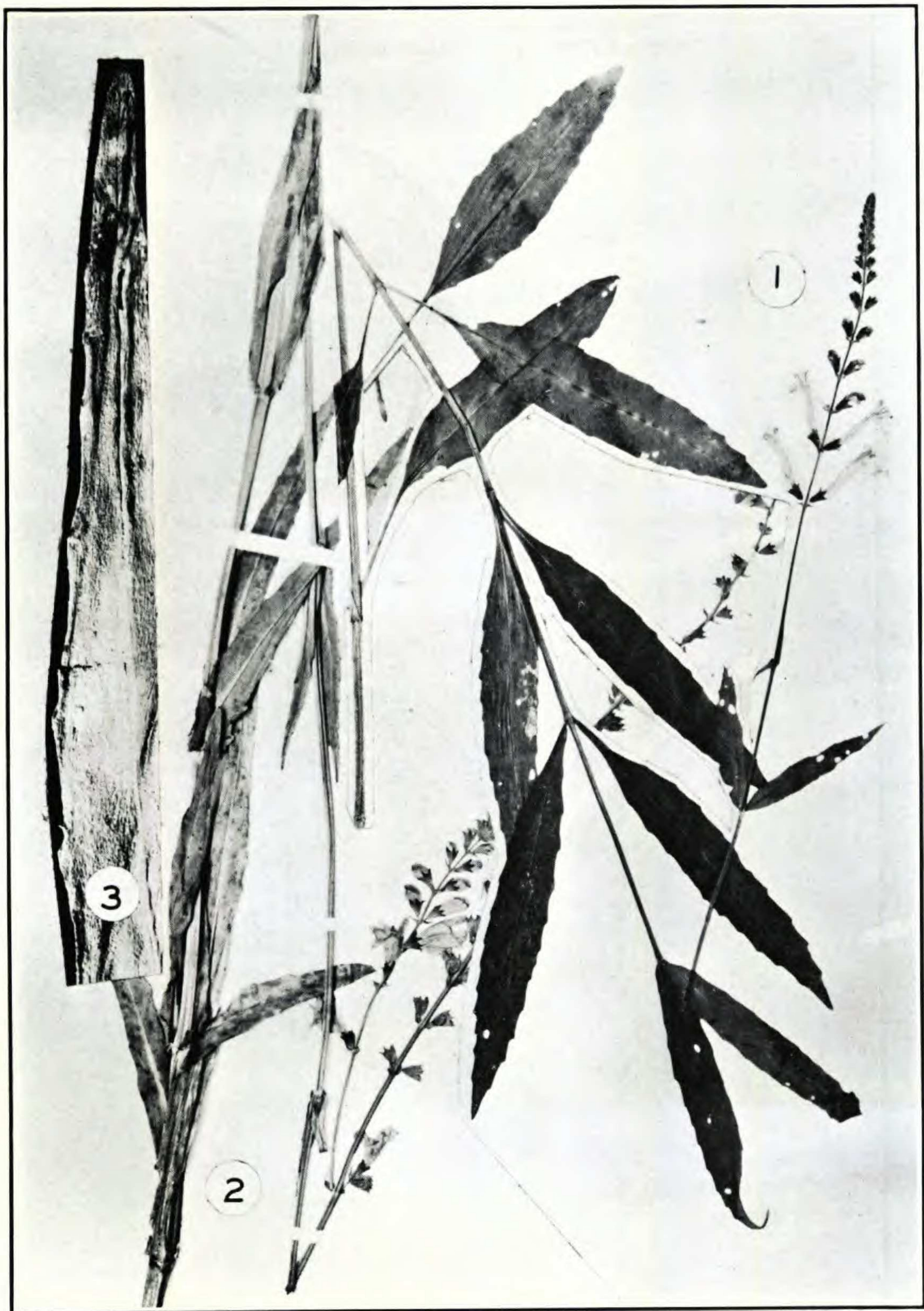


Photo. B. G. Schubert.

PHYSOSTEGIA DENTICULATA: FIG. 1, plant,  $\times \frac{2}{5}$   
P. INTERMEDIA: FIG. 2, plant,  $\times \frac{1}{2}$ ; FIG. 3, leaf-margin,  $\times 2$





Photo. B. G. Schubert.

PRASIUM? PURPUREUM Walt.: FIG. 1, leaf,  $\times 1$ , from tracing by S. F. Blake  
 PHYSOSTEGIA ANGUSTIFOLIA: FIGS. 2-4, Drummond, no. 251,  $\times 5/9$ ; FIG. 5, leaf of 251,  $\times 2$ ; FIG. 6, TYPE of species,  $\times 5/12$ ; FIG. 7, portion of leaf,  $\times 2$ , from TYPE



Camp has renamed *Vaccinium vacillans* as originally and beautifully described by Torrey, Fl. N. Y. 1: 444 (1843). In its place he publishes the very appropriate *V. Torreyanum* Camp in Am. Midl. Nat. xxiii. 177 (1940) = "*Vaccinium vacillans* Torrey, Fl. N. Y. 1: 444. 1843 (non exemp. in Mus. Brit.)" and to *V. pallidum* Ait. he refers "*Vaccinium vacillans* Kalm, apud Torrey, Fl. N. Y. 1: 444. 1843 (typ. in Mus. Brit. est)."

Torrey, unfortunately, gave to the familiar shrub so clearly described from New York state an old herbarium-name, *V. vacillans* "Kalm, mss. in Herb. Banks". The latter is worse than a *nomen nudum*. It had never been published even as a *nomen* and, surely, Torrey had not seen it in Banks's herbarium, since he did not go abroad. At best he had hearsay knowledge of it. I am, therefore, unable to see that a mere herbarium-name, given by Kalm to something which Torrey had not seen and which, according to Camp's note, he wholly misunderstood, takes precedence over the material from "the vicinity of New York" which Torrey so fully and accurately described. I retain the name *V. vacillans* as of Torrey. Had the name *V. vacillans* been accompanied by a description of Kalm's material or had it been previously published, it would stand for that element. Since Torrey, who first took up the name, described only the New York element, which Kalm did not have, the name is typified by Torrey's material, the only material described.

STYRAX AMERICANA Lam. To the relatively few stations in Virginia add one in SUSSEX COUNTY: upper border of sandy beach, Airfield Millpond, southwest of Wakefield, no. 14,383. See p. 372.

\*CYNOCOTONUM SESSILIFOLIUM (Walt.) J. F. Gmel. BRUNSWICK COUNTY: wet level opening in woods, 1½ miles southeast of Triplett, August 24, 1942, J. B. Lewis. See pp. 374 and 376.

POLYPREMUM PROCUMBENS L. It is so often stated that *Polypremum* is an annual ("much branched small annual"—Gray, Man.; "annual diffuse herb"—Small, Man.) that the correct description of Gray, Synopt. Fl., should be emphasized: "much branched from an annual (sometimes almost ligneous) root." In sandy clearings of Brunswick County the mature plants, late in the autumn, send out vigorous and crowded new basal offshoots, much as in *Lechea* (see Fernald & Lewis, no. 14,492).

AMSONIA TABERNAEMONTANA Walt. Local range extended to BRUNSWICK COUNTY: rich wooded slope below Western Bridge,



Meherrin River, south of Edgerton, *Fernald & Lewis*, no. 14,491. See p. 380.

\**ASCLEPIAS LANCEOLATA* Walt., var. *PAUPERCULA* (Michx.) Fern., forma **flaviflora**, floribus flavis. NORFOLK COUNTY: fresh reed-marsh and swale along Northwest River near Northwest, June 30, 1942, *Fernald & Long*, no. 14,390—a single plant associated with the rather abundant typical var. *paupercula* in which the hoods are deep orange to scarlet. TYPE in Herb. Gray. See p. 368.

\**ACERATES VIRIDIFLORA* (Raf.) Eaton, var. *LANCEOLATA* (Ives) Gray. PRINCE GEORGE COUNTY: argillaceous field north of Fort Hell, south of Petersburg, very scarce, no. 12,778. SUSSEX COUNTY: open thickets and clearings near Nottoway River at Readjuster Bridge, south of Peanut, no. 12,438.

*Acerates viridiflora* is excessively variable in foliage but all the material before me from southern New England and southern New York southward to the Carolinas, with the exception of five numbers from eastern Pennsylvania (Phil. Acad.) and the two numbers above cited, has the blunt or abruptly short-tipped leaves elliptic, oblong, oval or oblong-obovate and is, I take it, true *A. viridiflora*. Rafinesque's original description called for a "lanceolated, obtuse" leaf, "leaves lanceolated, obtuse, hirsute, umbells axillar, bending down, corniculas, without appendices. I have found it in several parts of Maryland and Pennsylvania, mostly in fields." In view of the oblong, elliptic or oblong-obovate outline of the obtuse leaves in the plant of Pennsylvania and Maryland, it is assumed that Rafinesque's "lanceolated" was used with poetic license.

In the representation in the Gray Herbarium there is no material of this obtuse-leaved plant from the north-central states. It occurs in North Carolina (Small implies Florida), Louisiana, Texas and New Mexico, northward in the Mississippi drainage to Kentucky and Kansas. From southern Ontario to Manitoba and Wyoming the usual plant has lanceolate to narrowly ovate leaves tapering from near the base to acuminate or prolonged acute tips. This is var. *lanceolata* (Ives) Gray, occurring from southern Ontario, Manitoba and Wyoming southward to Louisiana, Texas and New Mexico, in the South mingling with the obtuse-leaved plant. I am quite unable to separate the two numbers from Virginia and some from southeastern Pennsylvania from characteristic var. *lanceolata* of the Interior. In the East



they look like mere leaf-variations of one plant. In view of the very different broad ranges of the two, however, I am making this note, especially with the hope that the plants will be carefully checked elsewhere in the East.

*PHLOX NIVALIS* Lodd. (*P. Hentzii* Nutt.) An extensive station in GREENSVILLE COUNTY: dry sandy woods along Fontaine Creek, Round Hill Church, *Fernald & Lewis*, no. 14,543. See p. 383.

*P. CAROLINA* L., var. *TRIFLORA* (Michx.) Wherry. Another station in DINWIDDIE COUNTY: low open pineland, thickets and clearings just east of McKenney, no. 14,393. See p. 365.

*NEMOPHILA MICROCALYX* (Nutt.) Fisch. & Mey. This vernal annual, characteristic along the James, is also in GREENSVILLE COUNTY: rich woods along Meherrin River, below Emporia, *Fernald & Lewis*, no. 14,542, growing with the abundant *Phacelia dubia* and very luxuriant (up to 4.5 dm. high). See p. 383.

*HYDROLEA QUADRIVALVIS* Walt. Range extended inland to BRUNSWICK COUNTY: swampy pond-hole in woods, Rattlesnake Creek, west of Triplett, *Fernald & Lewis*, no. 14,493. See p. 377.

*MYOSOTIS VERNA* Nutt. Local range extended. JAMES CITY COUNTY: rich woods and slopes by James River, Grove Landing, southeast of Grove, *Fernald, Long & Abbe*, no. 14,227. SUSSEX COUNTY: fallow field along Nottoway River at Readjuster Bridge, south of Peanut, *Fernald, Long & Abbe*, no. 14,228.

*SCUTELLARIA SERRATA* Andr. BRUNSWICK COUNTY: rich wooded slope near Western Bridge, Meherrin River, south of Edgerton, *Fernald & Lewis*, no. 14,494. See p. 380. Epling, in his American Species of Scutellaria, Univ. Cal. Pub. Bot. xx. no. 1, 85 (1942) cites no Virginia specimens from the southern counties east of the Blue Ridge.

\**PHYSOSTEGIA aboriginorum*, sp. nov. (TAB. 783), planta robusta 10.5–12 dm. alta basi valde surculoso; caule glabro ad basin 0.8–1 cm. diametro; foliis firmis sessilibus vel imis late subpetiolatis oblongis obtusis vel subacutis undulato-sinuatis, primariis 8–11 cm. longis 1.7–2.5 cm. latis; inflorescentia paniculata, ramibus lateralibus prolongatis arcuato-adscendentibus; spicis subdensis 0.4–2 dm. longis, calycibus fructiferis imbricatis, rhachi puberula; calycibus breviter campanulatis puberulis, tubo maturo 5–6 mm. longo, dentibus deltoideis; corollis purpureis 2–2.5 cm. longis fauce ampliata 8–10 mm. diametro; filamentis ad apicem villosis.—Norfolk County, VIRGINIA: swale at margin of Indian Creek (whence the specific name), northeast of Northwest, June 30, 1942, *Fernald & Long*, no. 14,397 (TYPE in Herb. Gray.; ISOTYPE in Herb. Phil. Acad.). See p. 368.

*Physostegia aboriginorum* differs strikingly from the more fre-



quent species of southeastern Virginia (of the Blackwater and the Nottoway drainage-systems) in its broader-oblong, merely undulate-margined, firm sessile leaves, the lower ones narrowed merely to dilated bases, the upper ones but slightly reduced in size; the paniced spikes densely flowered, with imbricated pairs of fruiting calices; the corolla more ampliate; the filaments copiously pilose to summit. *P. denticulata* (Ait.) Britton (our PLATE 784, FIG. 1), common in the alluvium of the Nottoway or the Blackwater and their tributaries in Southampton, Isle of Wight and Nansemond Counties, has the leaves thin and membranaceous, the lower 4 to 6 pairs oblanceolate or oblong and on long slender petioles, the middle and upper ones sessile and long-attenuate at tip, the uppermost very small. Its usually solitary, slenderly elongate spike is very interrupted, the pairs of flowers and fruiting calices remote; the corolla more slender, the filaments glabrous or only sparsely pilose at tip.

From *Physostegia leptophylla* Small the Norfolk County plant differs in its much larger leaves in more scattered and more sessile pairs, with merely undulate margins, and in its more slender corolla, *P. leptophylla* having the many (up to 16) pairs of more prominently dentate leaves mostly narrowed to base and the greatly distended corolla with throat 1.5 cm. broad at summit. From *P. veroniciformis* Small *P. aboriginorum* differs in much greater size, the leaves not fiddle-shaped, the calyx-lobes short and deltoid, instead of elongate and lanceolate, the corolla larger, and the long, as well as the short, filaments hairy.

This segregation of species of the Northwest River and its tributary, Great Dismal Swamp, and the North Landing River drainage, with small tributaries interlocking with those of the Northwest River, both emptying into the head of Currituck Sound, is very real. The Blackwater and Nottoway merge at the State Line to form the Chowan, which, a few miles farther south receives the Meherrin and then empties into Albemarle Sound. On the bottomlands or wooded slopes of the Blackwater, Nottoway or Meherrin on the Coastal Plain of Virginia hundreds of species occur which we do not know from the bottoms, swamps and marshes of the more eastern drainage systems. Conversely the Northwest and North Landing drainage (or that of Back Bay slightly to the east) have scores (many



more yet to be discovered) of plants which we do not know from the Blackwater, the Nottoway or the Meherrin drainage (*Pinus serotina*, *Limnobium Spongia*, *Arundinaria gigantea*, *Andropogon virginicus* var. *glaucopsis*, *Scleria flaccida*, *Cladium jamaicense*, *Wisteria frutescens*, *Ilex vomitoria*, *I. coriacea*, *Stewartia Malachodendron*, *Ludwigia pilosa*, *L. alata*, *Asclepias lanceolata* var. *paupercula*, *Lobelia elongata*, *Eupatorium recurvans*, *E. cuneifolium*, *Aster Elliottii*, etc.). *Physostegia aboriginorum* is the latest addition to this series.

I am using the name *Physostegia denticulata* in its traditional sense. Originally published as *Dracocephalum denticulatum* by Aiton, Hort. Kew. ii. 317 (1789) from Carolina material, its diagnosis was good, though very brief: "D. floribus spicatis remotis, foliis obovato-lanceolatis superne denticulatis". Such a plant abounds, as stated, on the Coastal Plain bottomlands of the Blackwater and the Nottoway, thence south to Florida, represented in the Gray Herbarium by material from five counties of North Carolina: Hertford, on the Chowan River, and Perquimans, draining into Albemarle Sound; thence south to the region of Wilmington, and from Georgetown County, South Carolina. The general geographic source of Aiton's material is unequivocal.

In RHODORA, xvii. 134 (1915) Blake, publishing the combination *Physostegia purpurea* (Walt.) Blake, based on *Prasium? purpureum* Walt. Fl. Carol. 166 (1788), identified it with *P. denticulatum*. Walter's diagnosis was as follows: "foliis oppositis sessilibus lanceolatis dentatis, floribus purpureis, spicis distichis terminalibus"; and the very sketchy sketch (our PLATE 785, FIG. 1) made by Blake of the type of *Prasium? purpureum* is difficult to match in any material usually placed in *Physostegia denticulata*. Blake's description (mss. in Gray Herb.) of the specimen says "leaves . . . 3 mm. wide . . . Corolla would be just 2 cm. long if straightened out . . . It agrees very well with Drummond 251, e. g. in Brit. Mus." Now it so happens that Drummond's no. 251 from New Orleans (our PLATE 785, FIGS. 2-5) has elongate-linear leaves very strongly suggesting Blake's sketch of the much crumpled Walter type, but it has finely sharp-serrate margins (FIG. 5) and is a quite characteristic specimen of a wide-ranging species (our PLATE 785,



FIGS. 6 and 7) which occurs from Tennessee to Illinois and Arkansas, south to Mississippi, Louisiana and Texas, the plants variously misidentified as *P. denticulata*, *P. virginiana* (L.) Benth. ("very slender form") and *P. speciosa* Sweet. Furthermore, a habitually quite similar species, *P. intermedia* (Nutt.) Engelm. & Gray (our PLATE 784, FIGS. 2 and 3), with slender and interrupted spike and with leaves narrowly lanceolate to linear but with flowers relatively small, extends eastward into Kentucky and Alabama. This small-flowered species has the leaves dentate, as described by Walter for *Prasium? purpureum*, not acutely serrate as in *Drummond*, no. 251; but, so far as we know, neither of these sessile- and narrow-leaved species is east of the mountains. With no such plant as indicated by Blake's sketch (PLATE 785, FIG. 1) now known in Walter's territory, it is unsafe to assert with confidence just what his *Prasium? purpureum* is. Until Walter's type can be rechecked with Drummond's no. 251 (with linear, sharp-toothed leaves and slender, interrupted spikes) clearly in mind there must remain some doubt regarding its identity with *Physostegia denticulata*. Until his type can be reexamined and closely compared with a series including all known species of the Carolinas, as well as *Drummond*, no. 251 and *Physostegia intermedia*, it is safest to let the name rest, as it did until Blake took it up, as still of doubtful significance.

I am, therefore, at the risk of possibly publishing a species already inadequately described, proposing

*P. angustifolia*, sp. nov. (TAB. 785, FIG. 2-7), planta erecta caule glabro 3-10 dm. alto; foliis rigidis griseis vel pallidis linearibus vel anguste lanceolatis sessilibus numerosis (16-22 jugis), imis obtusis vel subacutis, mediis attenuatis valde angusteque adpresso-serratis 4-10 cm. longis 3-10 mm. latis, foliis supernis valde reductis; spicis solitariis vel paniculatis elongatis ad 3.5 dm. longis floribus distantibus, rhachi puberulo; calycibus campanulatis 6-10 mm. longis pruinoso-puberulis glandulosisque dentibus deltoideis acuminatis; corollis purpureis vel albescentibus 2.5-3 cm. longis.—TENNESSEE: thickets along fence, Lavergne, Rutherford County, August 12, 1922, *Svenson*, no. 242. MISSISSIPPI: roadside bank near Egypt, Chickasaw County, May 18, 1933, *C. A. & Una F. Weatherby*, no. 6318, TYPE in Herb. Gray. ILLINOIS: Arlington Heights, Cook County, August 25, 1934, *Benke*, no. 5680; prairie, South Chicago, September 15, 1910, *Lansing*, no. 2803; Champaign, September 11, 1909, *Pease*, no. 12,403; LaSalle County, *Huett*; Sugar Creek Prairie, Richland



County, September 5, 1914, *Robert Ridgway*. ARKANSAS: moist roadside and ditch-bank, Fayetteville, June 13, 1938, *Fassett & Nielsen*, no. 19,829; low ground, northwestern Arkansas, June, *F. L. Harvey*, no. 116. LOUISIANA: Covington, May and June, *Hale*; New Orleans, 1832, *Drummond*, no. 251. TEXAS: de Bejar à Austin, Avril, 1828, *Berlandier*, no. 466; Amelia, Jefferson County, October 5, 1934, *Cory*, no. 11,108; Kerrville, Kerr County, June 25, 1894, *Heller*, no. 1906; 8 miles south of Bandera, Bandera County, June 5, 1933, *Cory*, no. 6607.

Most of the material (including many specimens not cited) has been distributed as *Physostegia virginiana* (L.) Benth., but that, as shown by a beautiful photograph of the type before me, is the common northeastern plant with relatively thin, lanceolate, often copiously and saliently serrate leaves mostly 1–2.5 cm. wide, the uppermost much reduced, the flowers in relatively short and crowded spikes (in fruit with imbricated calices and rarely 2 dm. long), the corolla 2–3 (in the type 2.4) cm. long. It has also been called *P. virginiana* var. *speciosa* (Sweet) Gray, but that is a variation of *P. virginiana* with broader and often more prominently serrate leaves, the larger blades 2–4 cm. wide and less reduced in size toward the summit of the stem. Sweet's original plate shows the corolla 2.5 cm. long.

Relatively small plants of *Physostegia virginiana* from the lower Susquehanna in southeastern Pennsylvania have sometimes been called *P. denticulata* because their leaves have the marginal teeth few and short. Similar forms, with low stature, small leaves and reduction of teeth, abound about Lake Champlain and in the vicinity of Montreal on the St. Lawrence. Others from the same regions and of similar proportions have well developed sharp teeth. They seem to be a reduced state of *P. virginiana*, somewhat atypical but without constant enough characters to merit specific recognition. The designation of the individuals of this small extreme of tidal shores of the St. Lawrence as a distinct species, *P. granulosa* Fassett in RHODORA, xli. 377 (1939), our PLATE 786, FIGS. 1 and 2, because it is stoloniferous and because its calyx is more glandular-puberulent than in some *P. virginiana*, overlooks the fact that carefully collected *P. virginiana* has stolons. Witness specimens of *Fernald & Long*, no. 14,465 from Hampden, Maine, of *Fassett*, no. 14,341 (our PLATE 786, FIGS. 3 and 4) from Bingham, Maine (toward 50 miles up-



river beyond the limit of tide and with leaves as small as and with fewer teeth than in isotypes of *P. granulosa*—in no. 14,341 some leaves with as few as 2–5 low teeth on each side, the type of *P. granulosa* described as with 4–8 but the isotypes in the Gray Herbarium showing 5–9 pairs of teeth), of the Faxons and others from Lake Champlain (PLATE 786, FIG. 5), of Eames from Trumbull, Connecticut, or of any other botanist who takes pains carefully to collect the stolons. The small extreme with small leaves having few and low teeth and the pubescence of the calyx short and glandular is noteworthy but scarcely a good species. I am calling it

*P. VIRGINIANA* (L.) Benth., var. **granulosa** (Fassett), stat. nov. *P. granulosa* Fassett in RHODORA, xli. 377 (1939). PLATE 786.

On the St. Lawrence var. *granulosa* is on areas covered by high tide; the lower part, at least, of its range on the Susquehanna is tidal shore; on Lake Champlain, where the variety abounds, and on the middle and upper Kennebec it is in areas which have had no extensive tides since the Champlain Subsidence, at which time a fresh arm of the sea entered Lake Champlain and a tongue extended well up the Kennebec. Can it be that the variety originated on Lake Champlain and the upper Kennebec at that period?

PLATE 783. *PHYSOSTEGIA ABORIGINORUM* Fernald: FIG. 1, TYPE,  $\times \frac{1}{2}$ ; FIG. 2, flower,  $\times 2$ ; FIG. 3, mature calices and rachis,  $\times 5$ .

PLATE 784. *P. DENTICULATA* (Ait.) Britton: FIG. 1, characteristic plant,  $\times \frac{2}{5}$ , from Monroe Bridge, Nottoway River, Southampton County, Virginia, Fernald & Long, no. 13,122. *P. INTERMEDIA* (Nutt.) Engelm. & Gray: FIG. 2, plant,  $\times \frac{1}{2}$ , from Lake City, Craighead County, Arkansas, Demaree, no. 5089; FIG. 3, leaf-margin,  $\times 2$ , from no. 5089.

PLATE 785. *PHYSOSTEGIA*: FIG. 1, tracing of leaf of type of *Prasium? purpureum* Walt., by Blake. *PHYSOSTEGIA ANGUSTIFOLIA* Fern.: FIGS. 2–5, Drummond, no. 251,  $\times \frac{5}{9}$ , said by Blake to match Walter's type of *Prasium? purpureum* (FIG. 1), which is also said to be *Physostegia denticulata* (see PL. 784, FIG. 1); FIG. 5, leaf of no. 251,  $\times 2$ ; FIG. 6, TYPE of *PHYSOSTEGIA ANGUSTIFOLIA*,  $\times \frac{5}{12}$ ; FIG. 7, portion of leaf,  $\times 2$ .

PLATE 786. *P. VIRGINIANA* (L.) Benth., var. **GRANULOSA** (Fassett) Fernald: FIGS. 1 ( $\times \frac{1}{2}$ ) and 2 ( $\times 2$ ), of isotype of *P. granulosa* Fassett, from Cap Rouge, Quebec, Victorin, no. 28,178; FIGS. 3 ( $\times \frac{1}{2}$ ) and 4 ( $\times 2$ ) from Kennebec River, Bingham, Maine, Fassett, no. 14,341; FIG. 5,  $\times \frac{1}{2}$ , from Lake Champlain, South Hero, Vermont, Hunnewell, no. 13,902.

*STACHYS CLINGMANII* Small. SURRY COUNTY: rich alluvial woods and thickets back of sand-beach of James River, below Sunken Meadow Beach, no. 8446; thicket back of sand-beach of Cobham Bay, James River, northwest of Chippokes, no. 12,788.



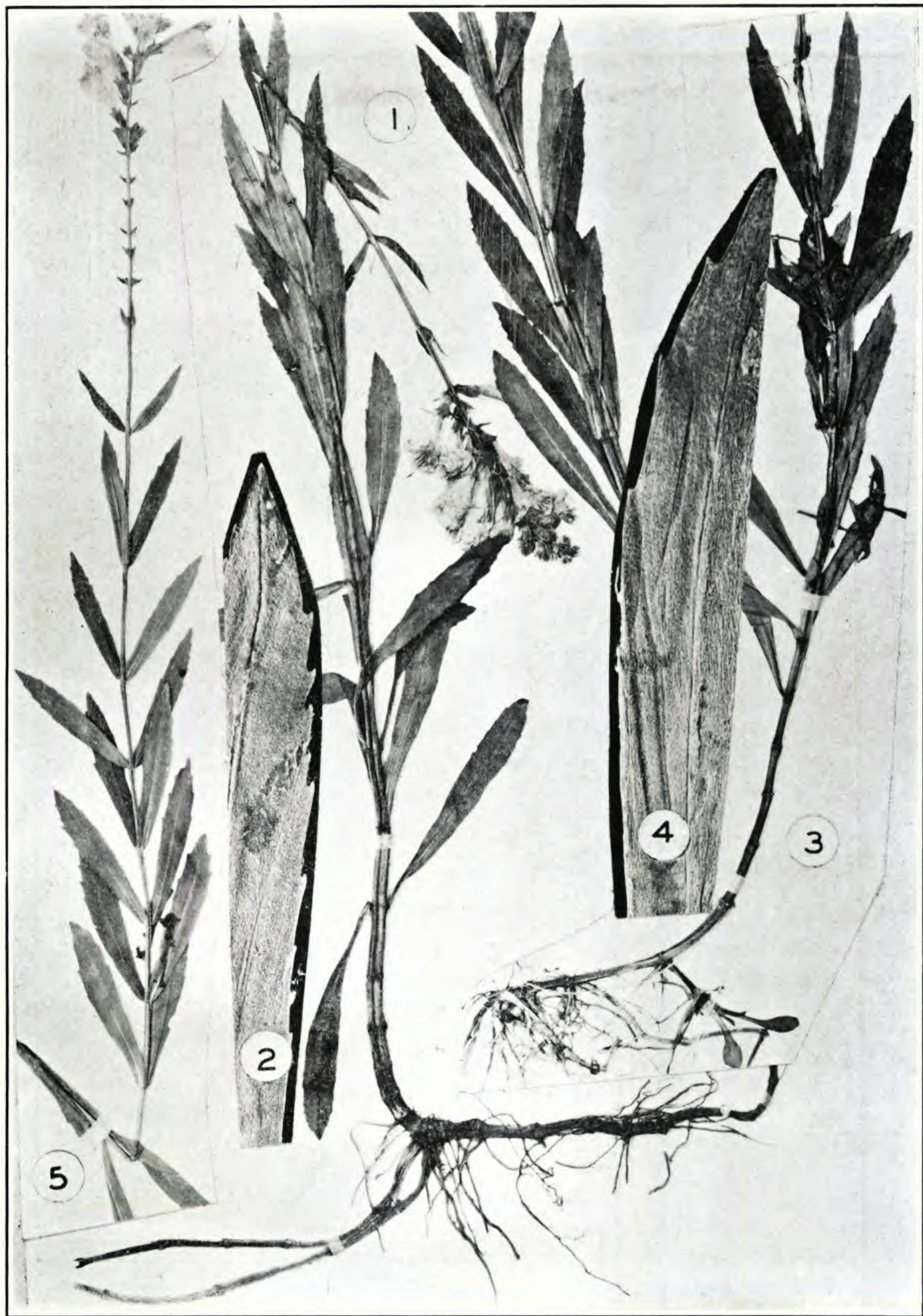
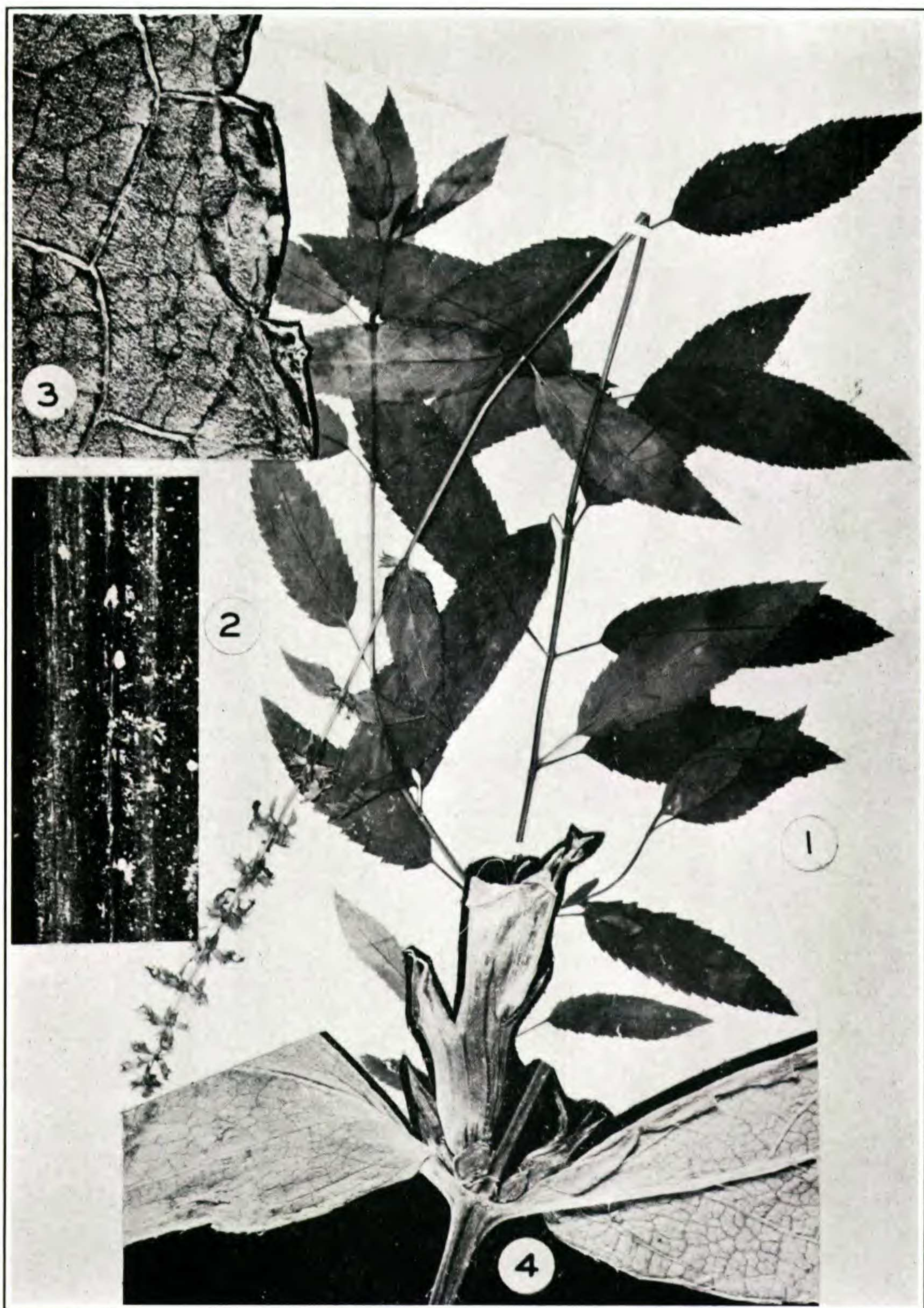


Photo. B. G. Schubert.

PHYSOSTEGIA VIRGINIANA, var. GRANULOSA: FIG. 1, ISOTYPE,  $\times \frac{1}{2}$ ; FIG. 2, portion of leaf of ISOTYPE,  $\times 2$ ; FIG. 3, plants,  $\times \frac{1}{2}$ , from upper Kennebec River, Maine; FIG. 4, leaf,  $\times 2$ , from the last; FIG. 5, plant,  $\times \frac{1}{2}$ , from Lake Champlain





*Photo. B. G. Schubert.*

STACHYS TENUIFOLIA: FIG. 1, plant,  $\times \frac{1}{2}$ ; FIG. 2, surface of stem,  $\times 10$ ; FIG. 3, lower surface of leaf,  $\times 10$ ; FIG. 4, bracts and flower,  $\times 4$



Both numbers have been erroneously reported in previous records as *Stachys Nuttallii* Shuttlew. The latter species of western North Carolina and eastern Tennessee has the sides of the stem minutely glandular-puberulent, the sessile or subsessile leaves glabrous beneath, the glandular and short-pilose calyx with broadly deltoid teeth. Our plant, also of the mountains, thence westward to Illinois, is the *S. Nuttallii* sensu Robinson & Fernald in Gray, Man. ed. 7. Its stems are glabrous on the sides, the membranous leaves slender-petioled and copiously hispid on the veins and veinlets beneath, the calyx glandular and minutely pilose, with narrow teeth long-subulate at tip. On the lower James it is as notable an isolation from the Appalachian Upland as if it were really *S. Nuttallii*.

\**S. TENUIFOLIA* Willd. CHARLES CITY COUNTY: alluvial woods along James River, Harrison Point, no. 9133. SOUTH-AMPTON COUNTY; open sandy alluvial bank of Nottoway River, below Cypress Bridge, and wooded bottomland, Cypress Bridge, nos. 6370 and 8447. GREENSVILLE COUNTY: wooded alluvial bottomland of Meherrin River, near Haley's Bridge, no. 9418. See PLATE and MAP 1.

Apparently typical *Stachys tenuifolia* is not definitely recorded as Virginian. In his *Preliminary Revision of American Stachys* in Fedde, Repert. Sp. Nov. Beih. lxxx. 68 (1934), Epling gives the range "from Western New York and Southeastern Pennsylvania westward to Michigan and Minnesota, and Southwestward through Tennessee and Alabama to Louisiana and Texas". He could have extended it southeastward into Georgia; at least a characteristic specimen from northern Georgia, coll. Chas. Wright, correctly identified by Asa Gray and validated by Epling in 1931, is in the Gray Herbarium. True *S. tenuifolia* is, obviously, chiefly a plant of the Interior; its occurrence on the bottomlands of southeastern Virginia is another instance of a now familiar isolation, as is material from river-swamp of Santee River in Charleston County, South Carolina, Godfrey & Tryon, no. 728. Epling's only suggestion that *S. tenuifolia* occurs in Virginia is his note that "Specimens collected . . . by Killip (no. 6286) near Great Falls, Virginia, show an apparent intermixture with *S. hispida* chiefly in hairiness of the calyces and the more subulate calyx teeth". Such transitions to *S. hispida* are so frequent that I cannot feel that the two are distinct



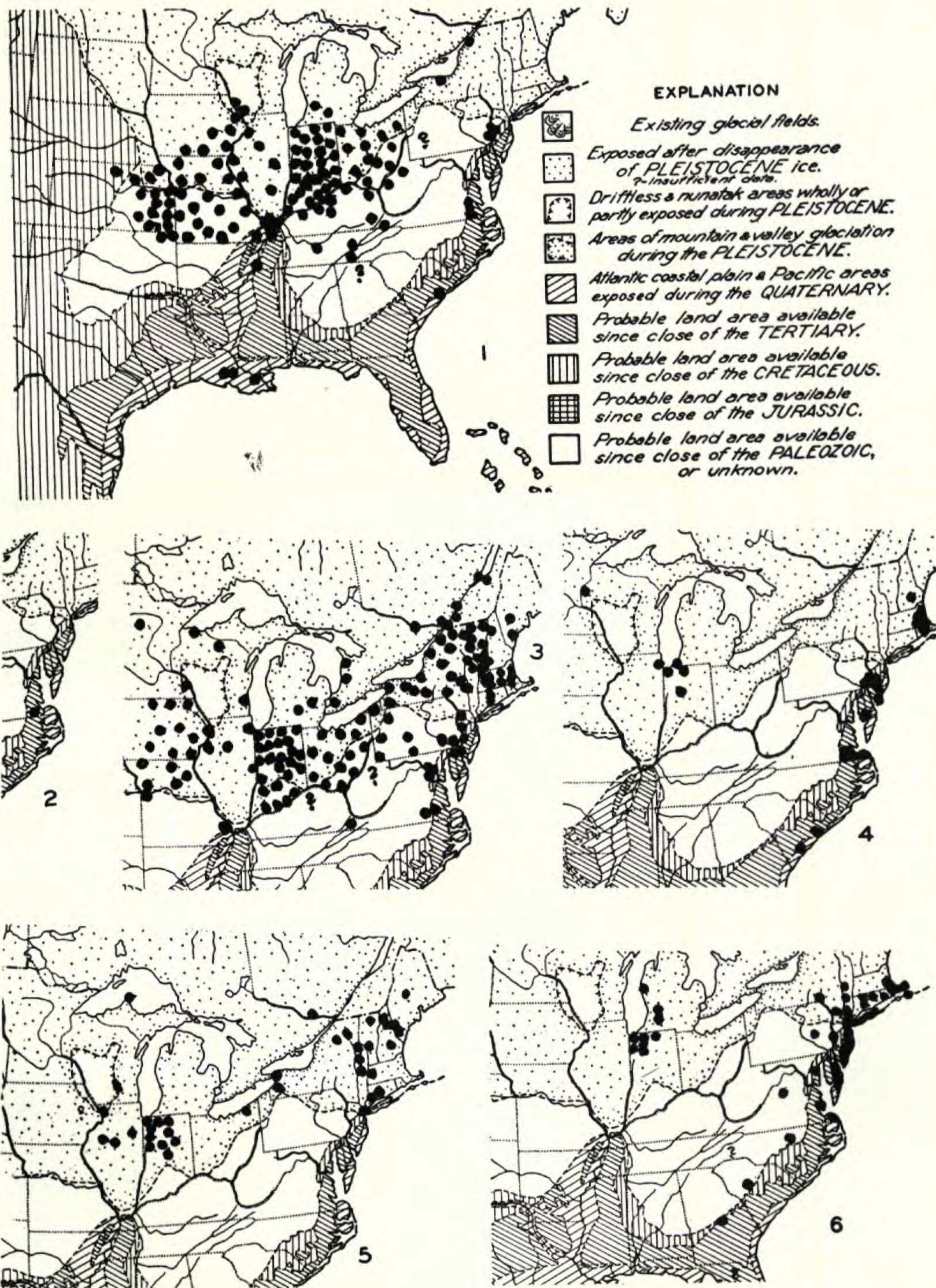
species, but are rather well pronounced geographic varieties. The following number from southeastern Virginia combines too intimately the characters of typical *S. tenuifolia* and those of typical *S. hispida*: SOUTHAMPTON COUNTY: bushy swales and borders of swampy woods near Blackwater River, Cobb's Wharf, no. 10,407. As I understand *S. tenuifolia* and *S. hispida* they are the two extremes of a rather polymorphous species, characterized by having the sides of the stem glabrous, the leaves with glabrous lower surfaces or with hispidity along the veins and veinlets but not on the intermediate tissue, and in the calyx being glabrous, or bristly only on the angles, its lance-attenuate teeth soon outwardly curving. As a polymorphous relatively southern species it is distinguished from the more northern (circumboreal) *S. palustris* L., in which the surfaces of the stem are pubescent, the leaves pilose to puberulent beneath, and the surfaces of the calyx pilose. My interpretation of *S. tenuifolia* is shown in the following brief synopsis.

- a. Bracts at base of glomerules of spike not ciliate; calyx glabrous throughout; leaves glabrous on both faces, the principal ones with slender petioles 0.5–3 cm. long.  
 Leaf-blades lanceolate to ovate-oblong or narrowly ovate, one fifth to three fifths as broad as long, the principal ones 4–10 cm. long and 1.2–6 cm. broad; spike stiff . . . . . *S. tenuifolia*, typical.  
 Leaf-blades narrowly oblong, about one sixth as broad as long; the median ones 1–1.5 dm. long and 1.6–2 cm. broad; spike flexuous . . . . . Var. *perlonga*.
- a. Bracts bristly-ciliate; calyx often bristly on the angles; leaves often hispid on veins beneath, sessile, or the lower ones short-petioled.  
 Principal leaves broadly oblong to narrowly ovate, one third to three fifths as broad as long, 5–15 cm. long, 2–6 cm. broad, glabrous to sparsely strigose above. Var. *platyphylla*.  
 Principal leaves narrowly lanceolate to narrowly lance-oblong, one sixth to one fourth as broad as long, 3–10 cm. long, 0.8–2.4 cm. broad, mostly strigose above. . . Var. *hispida*.

*S. TENUIFOLIA* Willd. Sp. Pl. iii. 100 (1800). *S. glabra* Riddell, Suppl. Cat. Ohio Pl. 16 (1836). *S. aspera*, var. *glabra* Gray, Syn. Fl. N. Am. ii<sup>1</sup>. 387 (1878). *S. cincinnatensis* Ktze. Rev. Gen. ii. 531 (1891).—Rich bottomlands, shores, low woods and meadows, New York to Minnesota, south to southeastern South Carolina, northern Georgia, Tennessee, northern Louisiana and eastern Texas. PLATE 787 and MAP 1.

\*Var. **perlonga**, var. nov. (TAB. 788, FIG. 1 et 2), var. typicae simillima; foliis anguste oblongis, mediis 1–1.5 dm. longis 1.6–2 cm. latis; spica flexuosa. VIRGINIA: bottomland woods





Range of (1) *STACHYS TENUIFOLIA*; (2) *S. TENUIFOLIA*, var. *PERLONGA*; (3) *S. TENUIFOLIA*, var. *PLATYPHYLLA*; (4) *S. TENUIFOLIA*, var. *HISPIDA*; (5) *S. PALUSTRIS*, var. *HOMOTRICHA* (*S. ambigua* sensu Epling, not Sm.); (6) *S. HYSSOPIFOLIA*



along Meherrin River northeast of Gaskins, Greenville County, June 13, 1941 (foliage), August 8, 1941 (flowers and young fruit), nos. 13,128 and 13,435 (TYPE in Herb. Gray.; ISOTYPE in Herb. Phil. Acad.). MAP 2.

\*Var. **platyphylla**, var. nov. (TAB. 789), caule ad angulos retrorse setoso; foliis primariis late oblongis vel anguste ovatis 5-15 cm. longis 2-6 cm. latis supra glabris vel sparse strigosis subtus ad venas hispidis vel glabris.—Low woods, rich shores and meadows, southern Quebec to Minnesota, south to eastern South Carolina, western North Carolina, Indiana and Illinois. The following, selected from a large series, are characteristic. QUEBEC: sur les rivages du Fleuve St.-Laurent, St.-Francois, Ile d'Orleans, 13 juillet 1935, *Victorin et al.*, no. 43,661; rivages Fl. St.-Laurent, Berthier en Bas, 3 août 1925, *Rousseau*, no. 21,610; Valleyfield, Co. Beauharnois, 6 septembre 1930, *Victorin, & Rolland*, no. 33,953; rivage, Ile Plate, Longueuil, 28 août 1928, *Victorin*, no. 28,272. MAINE: East Livermore, July 5, 1909, *Kate Furbish*; by small pond, Portland, June 20, 1909, *Fernald*, no. 2158. NEW HAMPSHIRE: bank of Connecticut River, Stratford, September 3, 1909, *Pease*, no. 17,705. VERMONT: pebbly lake-shore, Highgate Springs, July 19, 1938, *Pease*, no. 26,746; sandy shore of Connecticut River, Norwich, July 11, 1910, *E. F. Williams* (TYPE in Herb. Gray.); sandy bank, Burlington, July 8, 1914, *C. H. Knowlton*; pebbly shore, Brattleboro, 1894, *Grout*. MASSACHUSETTS: Sudbury, July 19, 1886, *W. Deane*; bank of Neponset River between upper and lower falls, Milton, August 29, 1853, *Wm. Boott*; roadside, Wellesley, July 11, 1896, *Hunnewell*; Middleboro, August 11, 1901, *J. Murdoch, jr.*; edge of thicket, Northampton, July 23, 1932, *Hunnewell*, no. 12,496; bank of Connecticut River, Springfield, July 13, 1914, *Luman Andrews*. CONNECTICUT: bank of Connecticut River, East Windsor, July 13, 1902, *Bissell*; South Meadow, Hartford, July 7, 1908, *H. S. Clark*. NEW YORK: shores of Black Lake, Morristown, August 15, 1914, *Phelps*, no. 814; Mohawk flats east of Utica, July 18, 1900, *Haberer*, no. 709; Sylvan Beach, Oneida County, July 13, 1916, *House*; bank of Hudson River, near Cedar Hill, south of Albany, July 17, 1910, *Burnham*; wet gravelly soil, Ulysses, July 1, 1913, *E. L. Palmer*, no. 1039; moist thicket near Cold Spring, Alleghany State Park, July 30, 1926, *Alexander & House*, no. 12,783. NEW JERSEY: marsh, Rosenkraus Ferry, Delaware River, Sussex County, July 4, 1918, *E. B. Bartram*; wet ground, Kaign's Point, Camden, June 21, 1922, *Meredith*; border of tidal marsh along Delaware River, north of Penns Grove, August 9, 1935, *Fogg*, no. 9309. PENNSYLVANIA: Sellersville, July 18, 1923, *Fretz*; Greene County, July 2, 1923, *S. S. Dickey*; Presque Isle, June 29, 1922, *Dickey*. VIRGINIA: swampy woods near Nottoway River at Readjuster Bridge, south of





Photo. B. G. Schubert.

STACHYS TENUIFOLIA, var. PERLONGA: FIG. 1, ISOTYPE,  $\times \frac{2}{5}$ ; FIG. 2, bracts and calices,  $\times 4$

S. HYSSOPIFOLIA: FIG. 3, plant,  $\times \frac{1}{2}$ ; FIG. 4, bract and calyx,  $\times 4$ ; FIG. 5, nutlet,  $\times 10$



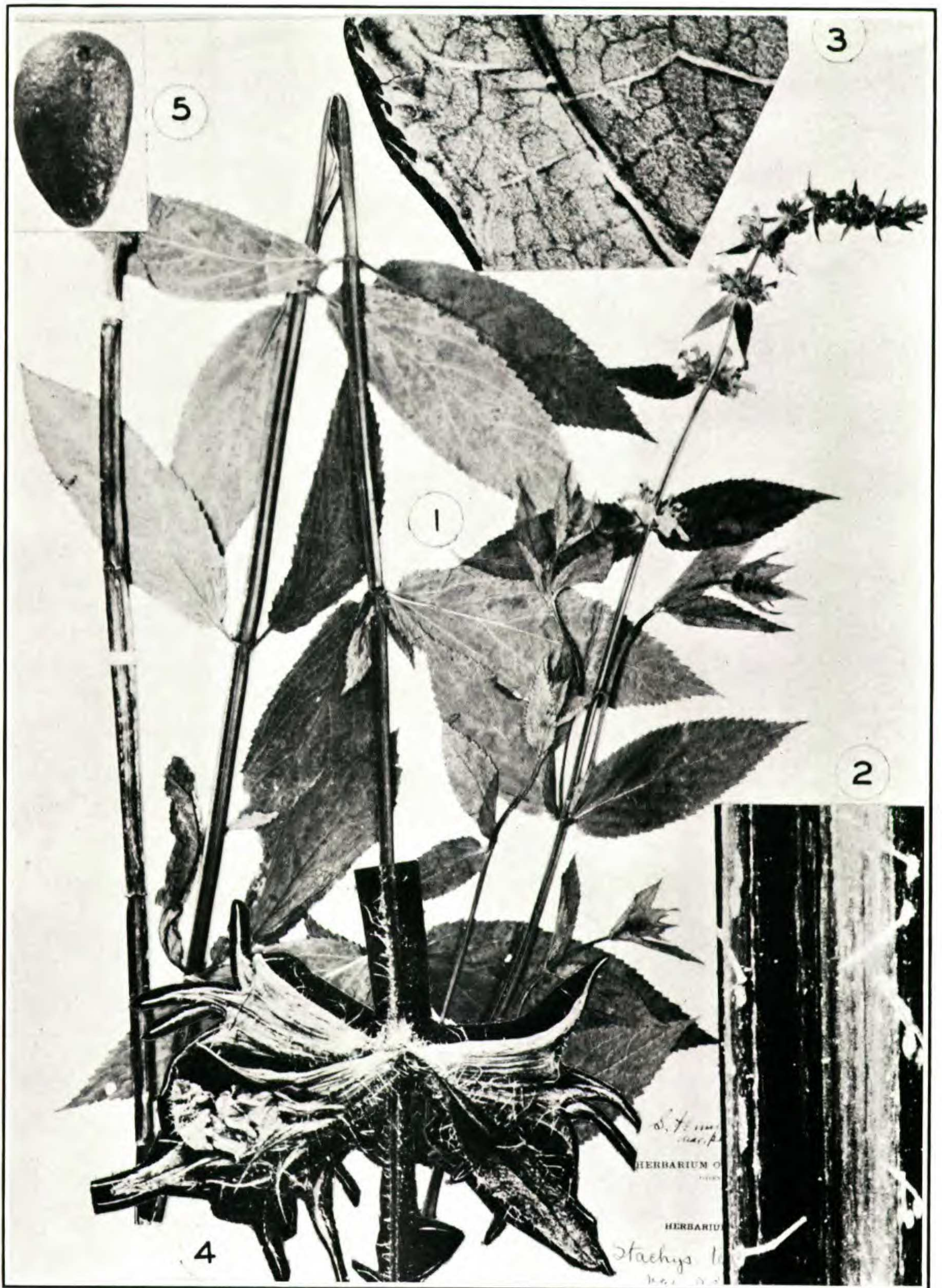


Photo. B. G. Schubert.

STACHYS TENUIFOLIA, var. PLATYPHYLLA: FIG. 1, TYPE,  $\times \frac{2}{5}$ ; FIG. 2, surface of stem,  $\times 10$ ; FIG. 3, lower surface of leaf,  $\times 10$ ; FIG. 4, rachis, bracts and calices,  $\times 4$ ; FIG. 5, nutlet,  $\times 10$



Peanut, Sussex County, June 18, 1941, *Fernald & Long*, no. 13,129; along branch, south of Meherrin River, south of Western Bridge, Brunswick County, *J. B. Lewis*, nos. 2800 and 3538. SOUTH CAROLINA: Woodstock, 1833, *Gibbes* in Herb. N. Y. Bot. Gard. ONTARIO: Ottawa, August 8, 1894, *J. Macoun*, no. 5852; Wingham, July 24, 1894, *J. A. Morton*; Chippewa, July 5, 1858, *Wm. Boott*. MICHIGAN: near river, Flint, July 21, 1909, *Sherff*; Agricultural College, July 25, 1896, *C. F. Wheeler*. OHIO: Troy, Geauga County, July 21, 1904, *R. J. Webb*, no. 716; Sandusky, August 1, 1894, *Moseley*; Rocky River, near Cleveland, July 13, 1896, *Greenman*, no. 1403; Painesville, July 19, 1885, *Werner*, no. 342; Sugar Grove, Fairfield County, August 6, 1892, *Werner*, no. 343; near Cincinnati, July 9, 1888, *C. G. Lloyd*. WISCONSIN: Fort Wing, July 10, 1897, *L. S. Cheney*, no. 7166. ILLINOIS: Stony Island, Cook County, June 30, 1914, *H. H. Smith*, no. 5974; damp woods, Peoria, July, 1903, *F. E. McDonald*; banks of Mississippi, near Oquawka, July 18, 1872, *Patterson*. MINNESOTA: Lake City, August 13, 1883, *W. H. Manning*. MAP 3.

Var. **hispid**a (Pursh), comb. nov. *S. hispid*a Pursh, Fl. Am. Sept. ii. 407 (1814). *P. tenuifolia*, var. *aspera* sensu Fernald in RHODORA, x. 85 (1908), not *S. aspera* Michx., basonym. *S. ambigua* sensu Robinson & Fernald in Gray, Man. ed. 7: 701 (1908), not *S. ambigua* (Gray) Britton.—Meadows, swamps, low woods and shores, southern New Hampshire, eastern Massachusetts and Rhode Island, eastern New York, south to eastern South Carolina; Michigan, Wisconsin, Indiana and Illinois. The following selected from a large series, are typical. MASSACHUSETTS: tidal bank of Merrimac River, Newburyport, *Donald White*, no. 501; near Concord River, Lowell, July 14, 1880, *C. W. Swan*; riverbank, Concord, July 17, 1886, *Deane*; Prince's Pond, Needham, August 2, 1884, *T. O. Fuller*; Neponset River, Hyde Park, July 10, 1904, *A. W. Cheever*; Pine Tree Brook, Milton, July 13, 1911, *Churchill*; Dedham, July 18, 1891, *Churchill*; wet meadows, Dover, *St. John*, no. 594; open bog, Sharon, July 12, 1896, *E. F. Williams*; sandy pond-shore, Walpole, *Hunnewell*, no. 6779; Middleboro, *Richard Murdoch*, no. 933; Taunton, *F. C. Seymour*, no. 4187. RHODE ISLAND: Providence, July, 1844, *Thurber*; Bristol, *F. S. Collins*, no. 2358; grassy bank near salt marsh, Portsmouth, July 11, 1909, *Sanford*. NEW YORK: various specimens from eastern counties intermediate between this and the preceding variety, none fully characteristic. NEW JERSEY: along streamlet 1 mile northeast of Delanco, Burlington County, *Long*, no. 6354; fresh marshes along Wading River, New Gretna, Burlington County, *Long*, no. 10,574; rich bog along railroad, Cold Spring, Cape May County, August 29, 1922, *Fogg*. PENNSYLVANIA: Tinicum, Delaware County, August, 1873, *Chas. Schaeffer*; meadow near Red Clay Creek,



Kennett Square, Chester County, June 28, 1924, *Mary A. Williams*. MARYLAND: King's Creek, *J. A. Holmes*, no. 98. VIRGINIA: wet argillaceous thickets and ditches, Rosemont, Princess Anne County, *Fernald & Long*, no. 5017; fresh reed-marsh and swale along Northwest River near Northwest, Norfolk County, *F. & L.*, no. 14,005; alluvial woods, along Nottoway River at Readjuster Bridge, south of Peanut, Sussex County, *F. & L.*, no. 12,459; bushy swales and borders of swampy woods near Blackwater River, Cobb's Wharf, Southampton County, *F. & L.*, no. 10,407 (transition to typical *S. tenuifolia*); alluvial woods by Fontaine Creek, west of Dahlia, Greensville County, *F. & L.*, no. 14,399; peaty and argillaceous clearing about 4 miles southeast of Emporia, *F. & L.*, nos. 8445 and 8834; bottom-land woods along Meherrin River northeast of Gaskins, Greensville County, *F. & L.*, no. 13,434. SOUTH CAROLINA: wet ditch, thicket, 13 miles east of Walterboro, Colleton County, *Wiegand & Manning*, no. 2793; border of swamp, 12 miles north of Georgetown, *Godfrey & Tryon*, no. 1067. MICHIGAN: near river, New Buffalo, *Lansing*, no. 3262. INDIANA: low place in woods, about 1 mile southeast of Woodland, St. Joseph County, *Deam*, no. 50,459; damp prairie, Roby, *Lansing*, no. 2542; Frankfort, June 27, 1886, *H. A. Young*. WISCONSIN: St. Croix Falls, July 8, 1900, *C. F. Baker*. ILLINOIS: open field, South Chicago, *H. H. Smith*, no. 5684. PLATE 790 and MAP 4. See p. 369.

*Stachys hispida* Pursh, typified by Epling by a Clayton specimen from Virginia (presumably in the eastern section), is, according to the description and as indicated by Epling's note on a sheet in the Gray Herbarium, this narrow-leaved extreme. Var. *hispida* has, so far as material before me shows, the broken range of many Coastal Plain types, great concentration in eastern Massachusetts and adjacent Rhode Island, absence from Connecticut and much, if not all, of New York, reappearance farther south, and with an area centering on Lake Michigan and running into Wisconsin. In Massachusetts, New Jersey, eastern Pennsylvania and eastern Virginia it tends to grow in more acid habitats than var. *platyphylla*, the latter preferring the sweeter and richer soils, as does typical *S. tenuifolia*.

The confusion of *Stachys hispida* with *S. aspera* Michaux arose through unfamiliarity with the latter. A photograph of the Michaux type now before me shows it to be, as identified by Epling, the southern plant which Gray (1878) described from Georgia, Kentucky and Illinois as *S. hyssopifolia* Michx., var.



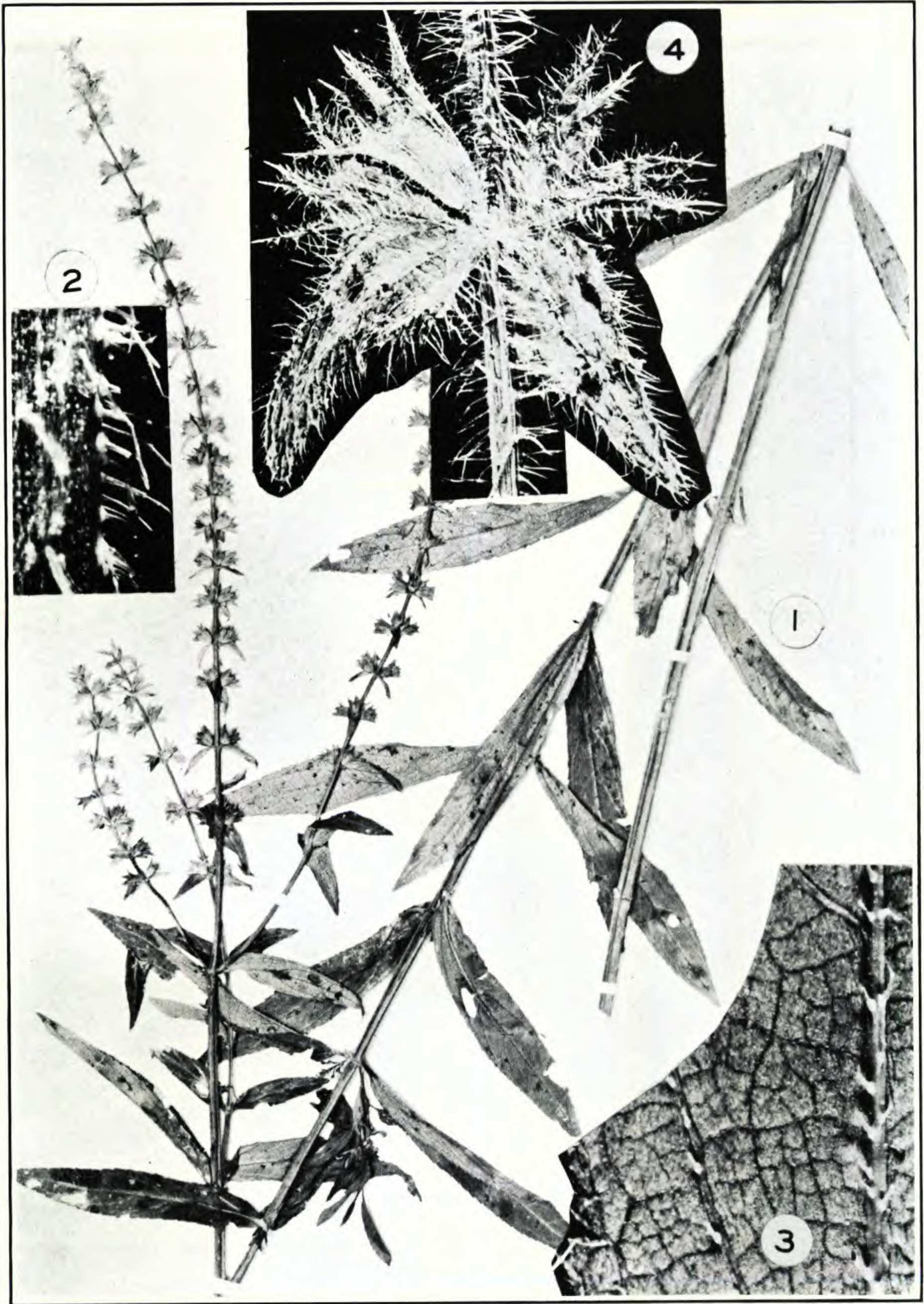


Photo. B. G. Schubert.

STACHYS TENUIFOLIA, var. HISPIDA: FIG. 1, plant,  $\times \frac{1}{2}$ ; FIG. 2, portion of stem,  $\times 10$ ; FIG. 3, lower surface of leaf,  $\times 10$ ; FIG. 4, rachis, bracts and calices,  $\times 4$



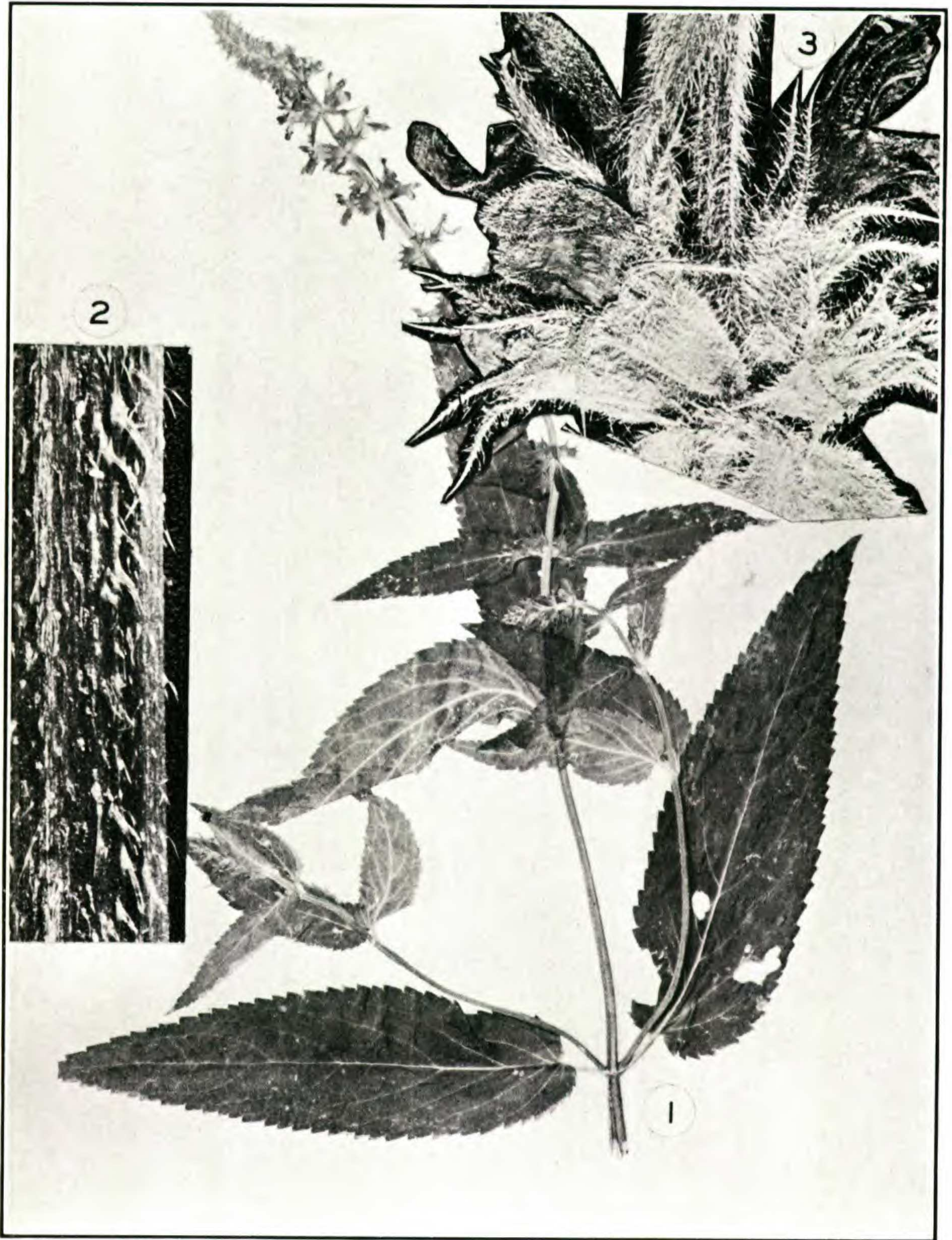


Photo. B. G. Schubert.

STACHYS AMBIGUA: FIG. 1, summit of plant,  $\times \frac{1}{2}$ ; FIG. 2, portion of stem,  $\times 10$ ; FIG. 3, calices,  $\times 4$



*ambigua*. It was soon called *S. ambigua* (Gray) Britton (1894) but, on account of the earlier European *S. ambigua* Sm. (1810), the name was changed to *S. Grayana* House (1921). *S. aspera*, described from “*in campestribus Carolinae*”, is a plant of sands and prairies from northern Florida to eastern Missouri, north to southern New Jersey, southeastern Pennsylvania, Kentucky, Illinois and Iowa; also adventive as a field-weed in Somerset County, Maine. It is, as Gray considered it, very close to *S. hyssopifolia* Michx., having the firm and scarcely veiny leaves almost of the latter but mostly broader, their lowest lateral nerves prolonged very close to the margin of the blade. From glabrous *S. hyssopifolia* it is distinguished only by the stems more or less retrorse-hispid on the angles, leaves sometimes broader and more regularly depressed-serrate, upper bracts often broadly-lanceolate to ovate (instead of linear or narrowly lanceolate), calyx often minutely pilose (instead of quite glabrous) and frequently setose on the angles. Gray's disposition of it, as *S. hyssopifolia*, var. *ambigua*, seems wholly justified. In the Carolinas and northeastward there are altogether too many transitions to support its separation as a species.

In his *Revision* Epling, l. c. 65, 66, including with the narrow-leaved *S. tenuifolia*, var. *hispida*, as above defined (PLATE 790), the generally more inland var. *platyphylla* (PLATE 789) as a species, *S. hispida*, was “inclined to believe *S. hispida* to have been derived from *S. ambigua*, probably after intermixture with *S. hyssopifolia*”. He identified as *S. ambigua* Sm. Engl. Bot. xxx. pl. 2089 (1810) the very pilose and narrow-leaved extreme of *S. palustris* L. which I had described as *S. palustris*, var. *homotricha* Fernald in RHODORA, x. 85 (1918), which he also identified with the similarly long-pilose *S. velutina* Schwein. (1824), not Willd. (1813) and *S. arenicola* Britton (1901). Just why *S. ambigua* sensu Epling (PLATE 793) is identified with *S. ambigua* Sm., the European plant (PLATE 791), is not clear. He was advised of the error but did not wholly admit it, saying, p. 65, “Since the above was written I have had the privilege of discussing this form with Prof. G ö t e T u r e s s o n who is of the opinion that I have mis-interpreted the European hybrid *S. ambigua*. This, according to him is a rare and sterile plant. Until I can review the whole matter I am accordingly at as [a]



loss. Suffice it to say that the form here described as *S. ambigua* is scarcely to be distinguished from plants commonly referred to that species of European botanists".

Now, *Stachys palustris*, var. *homotricha* (PLATE 793), i. e. *S. ambigua* sensu Epling, is a stiff and normally simple-stemmed plant with the sides and angles of the stem and the rachis densely and retrorsely long-pilose or villous (FIGS. 2 and 3), the lanceolate to lance-linear leaves sessile and heavily pubescent beneath (FIG. 2), the calyx long-hirsute (FIGS. 2-5), the outside of the corolla strongly pilose. It occurs from Maine and southern Quebec to Wisconsin, south to Connecticut, southern New York, Ohio and Illinois (MAP 5). *S. ambigua* Sm., on the other hand, is a generally recognized sterile hybrid of typical European *S. palustris* (the latter only naturalized in Newfoundland, eastern Canada, New England and New York) and the endemic European *S. sylvatica* L., a plant with long-petioled cordate-ovate leaves. As shown by Smith's original plate and description and by many European specimens (our PLATE 791) it is a tall and loosely branched plant with the stem (FIG. 2) minutely strigose-pilose, the principal leaves definitely petioled, the divergent oblong-ovate blades minutely pilose beneath, the calyx short-pilose (FIG. 3) and the corolla only finely pilose. If it is inseparable from the indigenous North American *S. palustris*, var. *homotricha* (PLATE 793), it is time to give up.

As to Epling's belief that *Stachys hispida* in his sense, i. e. both *S. tenuifolia* var. *platyphylla* (PLATE 789 and MAP 3) and var. *hispida* (PLATE 790 and MAP 4), was derived from his "*S. ambigua*" (taking it for the American plant cited by him, our PLATE 793, and *S. hyssopifolia* Michx. (PLATE 788, FIGS. 3-5 and MAP 6) one may be pardoned a gasp of surprise. *S. palustris*, var. *homotricha* (*S. ambigua* sensu Epling) is shown in PLATE 793, *S. tenuifolia*, vars. *hispida* and *platyphylla* (*S. hispida*, inclusive, of Epling) in PLATES 790 and 789. Together the latter have a wide continental dispersal (MAPS 3 and 4), while *S. palustris*, var. *homotricha* is northern and within the northern range of the former. *S. hyssopifolia* (PLATE 788, FIGS. 3-5), is primarily a plant of the Atlantic Coastal Plain, but with the typical isolation at the head of Lake Michigan (MAP 6). It is strictly glabrous, with linear to narrowly oblong blunt to subacute, firm, pale,